

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER D-46-1  
Relating to Exemptions under Section 27156  
of the Vehicle Code

TANNER ELECTRONIC SYSTEMS TECHNOLOGY, INC.  
"Art Linkletter ELECTRONIC IGNITION"

Pursuant to the authority vested in the Air Resources Board by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Section 39515 of the Health and Safety Code.

IT IS ORDERED AND RESOLVED: That the installation of "Art Linkletter Electronic Ignition" manufactured by Tanner Electronic System Technology, Inc., has been found to not reduce the effectiveness of required motor vehicle emission control devices and, therefore, is exempt from the prohibitions of Section 27156 of the Vehicle Code for installation on 1976 and older model-year vehicles. This device may be used on conventional Kettering ignition systems only.

The device is an electrolytic capacitor connected at the primary side between the coil positive terminal and ground.

This Executive Order is valid provided that installation instructions for this device will not recommend tuning the vehicle to specifications different than those listed by the vehicle manufacturer.

Changes made to the design or operating conditions of the device as originally submitted to the Air Resources Board for evaluation that adversely affect the performance of the vehicle's pollution control devices shall invalidate this Executive Order.

Marketing of this device using an identification other than that shown in this Executive Order or marketing of this device for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board.

This Executive Order does not constitute any opinion as to the effect that the use of this device may have on any warranty either expressed or implied by the vehicle manufacturer.

THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF ANY CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF THE TANNER ELECTRONIC SYSTEMS TECHNOLOGY, INC., "ART LINKLETTER ELECTRONIC IGNITION" DEVICE.

No claim of any kind, such as "Approved by Air Resources Board" may be made with respect to the action taken herein in any advertising or other oral or written communication.

Section 17500 of the Business and Professions Code makes unlawful, untrue or misleading advertising, and Section 17534 makes violation punishable as a misdemeanor.

Section 43644 of the Health and Safety Code provide as follows:

43644. (a) No person shall install, sell, offer for sale, or advertise except in an application to the state board for certification of a device, represent, any device as a motor vehicle pollution control device for use on any used motor vehicle unless that device has been certified by the state board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as a certified device which, in fact, is not a certified device. Any violation of this subdivision is a misdemeanor.

Any apparent violation of the conditions of this Executive Order will be submitted to the Attorney General of California for such action as he deems advisable.

Executed at Sacramento, California, this 25<sup>th</sup> day of February, 1976.

WILLIAM H. LEWIS, JR.  
Executive Officer

State of California

AIR RESOURCES BOARD

January 28, 1976

Staff Report

Evaluation of "Art Linkletter Electronic Ignition" for Exemption from the Prohibition of Section 27156 of the California Motor Vehicle Code

I. Introduction

Tanner Electronic-system Technology, Inc. Northridge, California 91324 has applied for an exemption from prohibitions of Section 27156 of the California Motor Vehicle Code for the "Art Linkletter's Electronic Ignition" device (See Exhibit A). The applicant intends to sell the device as an "add-on" part to the original conventional ignition system.

II. Device Description and Function

The device is an electrolytic capacitor with a capacitance of 4700 mfd. It is installed on the primary side of ignition system by connecting one terminal to the positive side of the ignition primary coil and the other terminal to the ground. Figure 1 shows the schematic wiring diagram. The device can be mounted on the fire wall or fender well using sheet metal screws.

In the conventional ignition system the battery does not supply energy to the ignition primary when the contact points are open. The purpose of the device is to use this time for storing energy in the capacitor. During ignition point dwell the device discharges the stored energy through the primary coil supplementing the voltage to the battery. The increase flow of current in the primary coil results in higher energy output from the secondary coil during the firing time.

### III. Device Evaluation

The applicant did not submit any emission tests data showing the effects of the device on the OEM emission control system.

The staff conducted bench tests in the ARB Laboratory in lieu of emission tests. In order to evaluate the device, the electrical characteristics of two ignition systems with and without the device were compared. Standard ignition tests SAE-J973a were made on 1972 V8 Chrysler and 1974 V8 Chevrolet distributors. The equipment used was the ARB's ignition system simulator which consists of a Sun Distributor Tester, Tektronic Oscilloscope, Sun Ignition Analyzer, and associated auxiliaries.

Table I shows the pertinent ignition tests data. Since there was no change in the distributors' advance characteristic the centrifugal advance data was not shown. The data show that there were 0-20% increases in peak primary current, flyback voltage, spark duration and energy. These increases however, are considered within a tolerable range and no significant degradation of the ignition points would be expected. An NOx device compatibility test was also conducted using the Carter Carburetor NOx device. Baseline and device tests indicated identical cut in and out speeds of the speed sensor when tested on the ignition system simulator with a 1972 Chrysler V-8 distributor.

#### IV. Conclusion and Recommendation

Based on the ARB test results, the installation of the "Art Linkletter Electronic Ignition" device will not adversely affect the ignition system and consequently will not diminish the effectiveness of the OEM emission control system. The staff recommends that Tanner Electronic Systems Technology, Inc. be issued an exemption from the prohibitions of Section 27156 of the Vehicle Code for its "Art Linkletter Electronic Ignition" device for installation on conventional ignition systems.

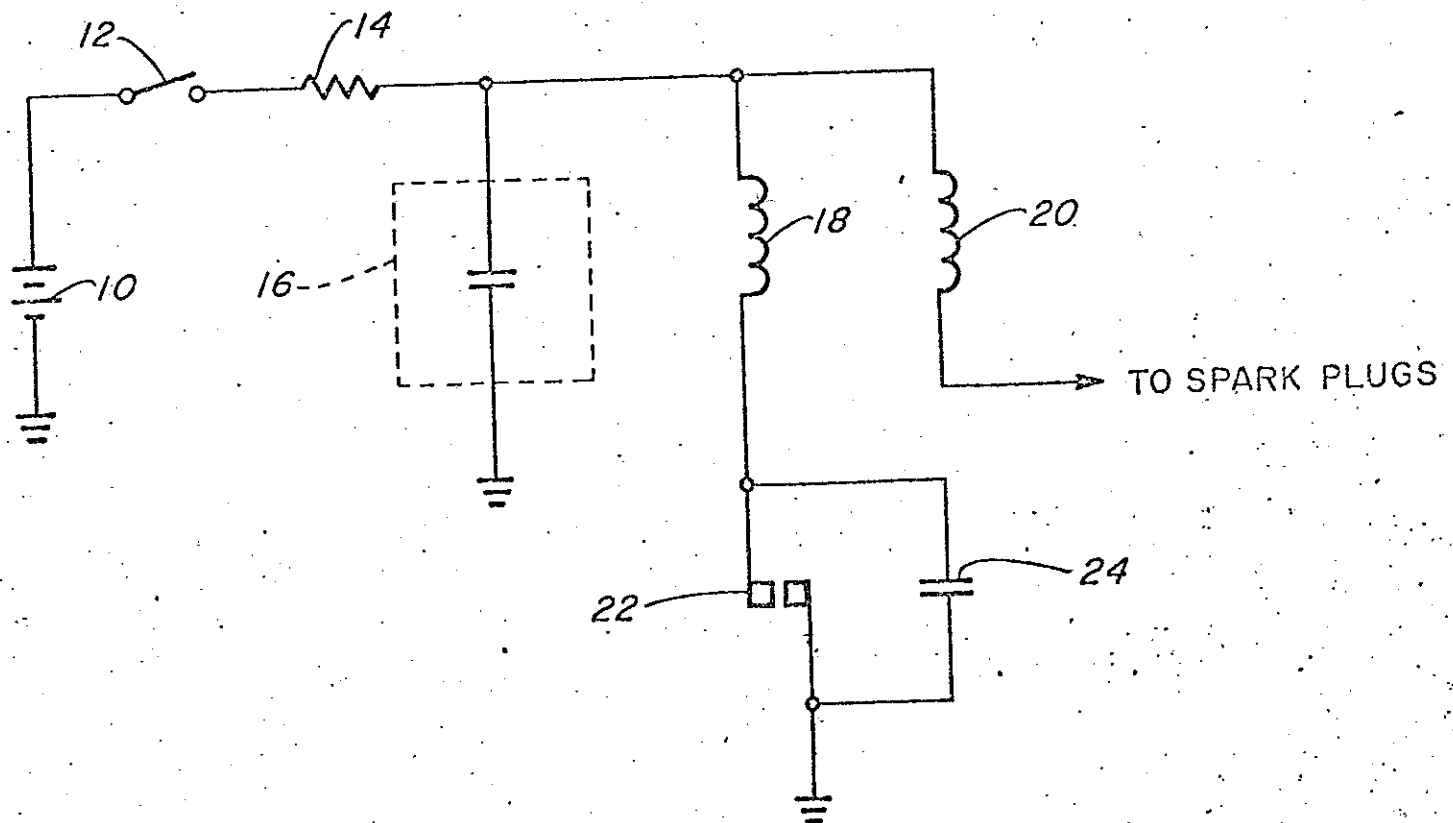


Figure 1 - Schematic diagram of modified conventional ignition system with the "Art Linkletter Electronic Ignition" device installed on the primary side

Legend:

- 10 = Battery
- 12 = Ignition Switch
- 14 = OEM Ballast Resistor
- 16 = "Art Linkletter Electronic Ignition" Device
- 18 = Primary Coil
- 20 = Secondary Coil
- 22 = Contact Points
- 24 = Condenser

Table I - Ignition Tests Data

1972 Chrysler V-8

	<u>300 Idle RPM</u>	<u>1,500 Cruise RPM</u>	<u>100 Start RPM</u>
	Baseline/Device	Baseline/Device	Baseline/Device
Peak primary current, amps	3.0/3.2	2.0/2.2	2.0/2.0
Peak primary reverse voltage, Vdc	240/260	170/190	160/160
Secondary voltage available (with load), KV	18/19	13/14	18/18
Secondary voltage required, KV	12/12	12/12	12/12
Spark duration, $\mu$ sec	2500/2800	1300/1500	1300/1300
Spark energy, millijoules	18.86/23.33	11.21/14.22	7.84/7.84
Secondary voltage available, KV (Simulating fouled spark plug)	14/16	8/9	8/8

1974 Chevrolet V-8

	<u>300 Idle RPM</u>	<u>1,500 Cruise RPM</u>	<u>100 Start RPM</u>
	Baseline/Device	Baseline/Device	Baseline/Device
Peak primary current, amps	2.8/2.9	2.0/2.2	2.0/2.0
Peak primary reverse voltage, Vdc	220/240	160/180	145/145
Secondary voltage available (with load), KV	24/26	16/18	20/20
Secondary voltage required, KV	12/12	12/12	12/12
Spark duration, $\mu$ sec	2000/2200	1400/1600	1600/1600
Spark energy, millijoules	20.69/23.90	13.58/18.62	12.41/12.41
Secondary voltage available, KV (Simulating fouled spark plug)	15/17	11/12	14/14

# T.E.S.T.

Incorporated NORTHBRIDGE CALIFORNIA

TANNER ELECTRONIC SYSTEMS TECHNOLOGY, INC. 18428 Nordridge Street Northridge California 91321 (213) 989-2400

JOHN GUEDEL  
Chairman of the Board

ART LINKLETTER  
Vice Chairman

JAMES L. TANNER  
President

BRUNO A. RIST  
Vice President/Engineering

Exhibit A

November 5, 1975

Mr. Chao  
Air Resources Board  
9528 Telstar Avenue  
El Monte, California 91731

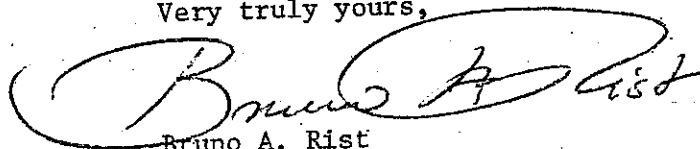
Dear Mr. Chao:

We hereby apply to the Air Resources Board, State of California, for a finding that the Art Linkletter Electronic Ignition manufactured by T.E.S.T., Inc. complies with the requirements of Section 27156 of the California Vehicle Code.

A detailed description of the device appears in the enclosed patent application, also included are installation instructions and a sample unit.

Should you require additional information to process this request please call me at (213) 989-4535.

Very truly yours,



Bruno A. Rist  
Vice President/Engineering

BAR:mar

Enclosures